

CT OSHA 96



CONSULTATION REPORT

for

**State of CT Department of Social Services
25 Sigourney Street
Hartford, CT 06106**

Submitted By: .

**State of CT Department of Labor
Division of Occupational Safety and Health
38 Wolcott Hill Road
Wethersfield, CT 06109**

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Summary

This report provides the results of a limited service health survey conducted on September 27 and October 18, 1996. When referring to this report, please reference the Visit Number 500311428.

An on-site industrial hygiene consultation visit was made in response to the request from a safety officer of a state agency to evaluate employee exposure to the possible presence of airborne chemical and/or biological contaminants.

The State of Connecticut Department of Social Services (CT-DSS) occupies approximately 3700 square feet on the ninth floor of a twenty floor building. The facility is owned by the state of Connecticut and maintained by Tunxis Management Corporation. The facility was constructed approximately 10 years ago of masonry, wood and metal building materials.

An opening conference was held with Mr. Norm Antarsh, by the consultant, on September 27, 1996, to discuss the scope of the survey and to reiterate the employer's rights and responsibilities, especially to correct imminent danger or serious hazards. Several workers from the floor attended the opening conference as well as representative from Tunxis Management. Employees who were present included Pat Lucash, Richard Dudek, Sally Wlodarski, Sharon Carfi and Stan Szymanski.

Following an opening conference, Mr. Antarsh accompanied this consultant on a walkthrough of the areas included in the consultation visit. A number of employees were interviewed throughout the survey to determine the nature of the employee concerns. According to Mr. Antarsh and other employees, complaints regarding the indoor air quality (IAQ) have predominantly included respiratory illness, sinus infections, itchy watery eyes, and allergic reactions.

The floor consisted principally of private and cubicle style offices. The area had a suspended ceiling with 2'x2' drop-in style tiles and was carpeted throughout. Cubicles were made up of approximately five foot high modular partitions.

The computer operations area was an isolated area on the ninth floor. This department operated three shifts per day five days per week with occasional overtime hours on Saturday. Large printing projects take place in this area mainly consisting of food stamps and checks. On an average day, approximately 1500 pages are processed. This area has two "Liebert System 3 Heating Ventilating and Air Conditioning (HVAC) Units". Air is distributed under the raised floor and through registers located in floor panels.

Mr. Benji Roccapiore, Tunxis Management's Chief Engineer for the building, provided an explanation of how the HVAC system for the floor functioned. The main portion of the floor had 7 temperature zones. "Barber Coleman Company Thermostats" were used and centrally controlled by Tunxis Management. A diagram was provided for employees so they could report areas where temperature adjustments may be needed. The system utilized a common loop distribution system with variable air volume (VAV) units located throughout the floor to control heating and cooling. Hot and chilled water for the system is purchased from Energy Networks, Incorporated, a co-generation plant located in the area.

A preventative maintenance program was reportedly in place which involved monthly inspection of the VAV's and pre-filters. On a quarterly schedule the filters were replaced and bags were changed. The HVAC system was designed to incorporate 20% outside air and maintain a slight positive pressure on the floor.

The results of monitoring conducted during this consultation are detailed in the monitoring data section. Recommendations provided for management that may alleviate symptoms and complaints regarding the office air were as follows:

1. The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) has recommended a comfort level for office areas which does not exceed a carbon dioxide level of 1,000 parts per million (ppm). While the results of carbon dioxide monitoring did not exceed this level, results in the computer operations area approached 1,000 ppm. This may indicate a lack of fresh make-up air for the number of occupants in these areas.

The ASHRAE guideline #62-1989, entitled "Ventilation for Acceptable Indoor Air Quality" recommends at least 20 cubic feet per minute per person of outside air be supplied to an office-type area. The design criteria for the systems should be reviewed and management should insure the systems are being utilized as designed.

2. Water stains were noted on a ceiling tile near the window in zone 6. Given the right circumstances, standing water may sustain the growth of biological organisms. Moisture from chillers and air handling units should be piped or routed to an appropriate drain to prevent pooling.

Water damaged materials, porous organic materials in particular, often support microbial growth long after they appear dry, and dead materials (spore, irritants) can remain in such material for years according to the American Conference of Governmental Industrial Hygienists (ACGIH).

Nonporous surfaces where microbial growth has occurred, can generally be cleaned and disinfected with detergents, chlorine generating slimicides, or other biocides ensuring that these chemicals have been removed before air handling units are turned on.

During the closing conference, the Hazard Description and Correction Recommendations and the Monitoring Report sections of this report were discussed with the office supervisor. Abatement dates for the alleged serious violations were agreed upon.

Safety and Health Hazards Found

The hazards found during the survey of your workplace is attachment A - Report of Hazards Found. Each hazard is categorized and described and recommendations are given for its correction. Hazards are in order of item number, not necessarily in order of importance.

Hazards could be in any of the following categories:

IMMINENT DANGERS are hazards that can reasonably be expected to cause death or serious physical harm immediately or before this written report is received. Any such hazards would have been corrected immediately, and no correction dates or space for correction method would appear in A - Report of Hazards Found.

SERIOUS HAZARDS can cause an accident or health hazard exposure resulting in death or serious physical harm. Each such hazard has been assigned a mutually agreed-upon date by which correction is to be completed.

OTHER-THAN-SERIOUS HAZARDS lack the potential for causing serious physical harm, but could have a direct impact on employee safety and health. We encourage you to correct these hazards and notify us of the action taken.

REGULATORY HAZARDS reflect violations of CONN-OSHA posting requirements, recordkeeping requirements, and reporting requirements as found in 29 CFR 1903 and 1904 and adopted by the State of Connecticut. No abatement dates have been set, but we request notification of their correction.

Notice of Obligation

As you know, we are required to notify the State of Connecticut, Department of Labor, Division of Occupational Safety and Health (enforcement branch of CONN-OSHA) if serious hazards are not corrected within the agreed-upon time. Extensions may be granted if you encounter difficulties completing correction within these time frames, but we must receive your request for an extension in writing before the correction due date.

The following information is required when an extension is requested:

1. The item number(s) for which an extension is desired.
2. Identify all steps taken to achieve compliance during the agreed upon abatement period, including the date(s) of these steps.
3. The additional abatement time necessary in order to achieve compliance.
4. The reasons why an extension is necessary (unavailability of material, equipment, help, etc.).
5. Identify all available interim or temporary measures being taken to safeguard employees from the hazards.
6. Any additional information you believe may be helpful to this office in considering your request for an extension.

(A Request for Extension form has been enclosed for your convenience.)


Although we are not required to notify CONN-OSHA enforcement branch if other-than-serious hazards are not corrected, these hazards could result in injury to your employees. Moreover, your company would be subject to citations for them in the event of a CONN-OSHA enforcement inspection.

Please inform this office of the corrective steps you have taken and of their dates, together with adequate supporting documentation, e.g., drawings or photographs of corrected conditions, purchase/work orders related to abatement actions, air sampling results, etc.

It is imperative that the appropriate corrective actions are taken to eliminate employee exposure to safety and/or health hazards and that this office receive the above required information.

Please mail or FAX attachment B - Employer Report of Action Taken, completed to show corrective actions taken, along with the requested documentation. Our FAX number is: (860) 566-6916.

In the event of a CONN-OSHA enforcement inspection, it is important to remember that the Compliance Officer is not legally bound by the consultant's advice or by the consultant's failure to point out a specific hazard. You may, but are not required to, furnish a copy of this report to the Compliance Officer, who may use it to determine your good faith efforts toward safety and health and reduce any proposed penalties. You are, however, required to furnish any employee exposure data from this report as required by 31-372-101- 1910.20.


Richard Crans

Attachments

A - Report of Hazards Found

Item Number	0001	Instance	A	Correction Due Date	02/28/97
Hazards Type	Serious				

Condition: Employer had not developed or implemented a written hazard communication program meeting the minimum requirements for workers in Computer Operations. Employees work with various printer inks and toners, fuser oil and cleaning fluids.

Location: Computer Operations

Potential Effects: Exposure or overexposure to hazardous substances and inadequate medical care, from lack of documentation resulting in a lack of communication of hazard information to employees and their representatives.

Standard: 1910.1200(e)(1)

Recommended Action: Develop and implement a detailed written hazard communication program to include, but not limited to the following:

(a) Labels and other forms of warning.

- (1) Designation of persons responsible for ensuring labelling of in-plant containers, received and/or shipped containers.
- (2) Description of labelling systems used.
- (3) Description of written alternatives to labelling of in-plant containers, if used.
- (4) Procedures to review and update label information when necessary.

(b) Material Safety Data Sheets (MSDS)

- (1) Designation of persons responsible for obtaining/maintaining the MSDS.
- (2) How such sheets are to be maintained (e.g., in notebooks in the work areas), and how employees can obtain access to them.
- (3) Procedure to follow when the MSDS is not adequate and/or is not received at the time of the first shipment.
- (4) Description of alternatives to actual MSDS in the workplace, if used.
- (5) Procedure for updating the MSDS when new and significant health information is found, if applicable.

(c) Training

- (1) Designation of persons responsible for conducting training.
- (2) Format of the program to be used (audio-visuals, classroom instruction, etc.)
- (3) Elements of the training program (see 1910.1200(h)).
- (4) Procedure to train new employees at the time of their initial assignment to work with hazardous chemicals, and to train employees when a new hazard is introduced into the workplace.

(d) A list of the hazardous chemicals in the plant. Note - Such list may be broken down to specific areas and/or department.

(e) Methods the employer will use to inform employees of the hazards of nonroutine tasks.

(f) Methods the employer will use to inform contractors of the hazards to which their employees may be exposed.

(g) Availability of the written program to employees and their designated representatives.

Item Number	0002	Instance	A	Correction Due Date	02/28/97
Hazards Type	Serious				

Condition: The Department of Social Services had not compiled a list of hazardous substances known to be present in Computer Operations.

Location: Computer Operations

Potential Effects: Exposure or overexposure to hazardous substances and inadequate medical care, from lack of hazard documentation resulting in a lack of communication of hazard information to employees and their representatives.

Standard: 1910.1200(e)(1)(i)

Recommended Action: Physically inspecting the entire establishment, compile one or more lists of all hazardous substances present (if in doubt, list the substance). Include quantities, locations and uses of each chemical.

Check the list(s) against available material safety data sheets (MSDSs). If a listed substance has no MSDS, obtain one from the manufacturer or supplier. If a listed substance has an MSDS that does not include the name as listed, add that name to the MSDS and send a copy of the amended document to its originator.

Check quantities on hand against usage. Avoid excess stocks. Properly dispose of chemicals which are no longer used or which have passed their expiration dates.

Item Number	0003	Instance	A	Correction Due Date	02/28/97
Hazards Type	Serious				

Condition: A material safety data sheet (MSDS) was not obtained for "Xerox Silicone Fuser Oil" which contained polydimethylsiloxane and "Xerox Dry Ink Plus" which contained styrene/butadiene copolymer and magnetite.

Location: Computer Operations

Potential Effects: Employees may be exposed unknowingly to a toxic material or may use a physically hazardous material in an unsafe manner due to lack of information about the chemical or its hazards. First aid in case of accidental exposure may be incorrect or delayed due to lack of information about first aid procedures. Emergencies may be prolonged or aggravated, or may become catastrophes, due to lack of information about emergency procedures.

Standard: 1910.1200(g)(1)

Recommended Action: Employers are required to have on hand an MSDS for every hazardous chemical used or manufactured, including intermediate substances to which employees might be exposed and substances not commonly recognized as "manufactured chemicals," such as carbon monoxide from lift trucks, used oil, welding fumes and wood dust.

Each MSDS should contain the following information, where known:

a. Identity or identities used on the label. b. Chemical and common names. c. Physical and chemical characteristics. d. Physical hazards. e. Health hazards (symptoms of low to high and short- to long-term exposure, time to onset and duration of symptoms, medical conditions aggravated by exposure, etc.). f. Primary routes of entry. g. Air exposure limits. h. Carcinogenicity. (While this is a health hazard, it needs to be emphasized, because cancer hazards are regulated more strictly by OSHA.) i. Precautions for safe handling and use (e.g., "Do not mix with chlorine bleach—explosion may result.") j. Control measures. k. Emergency and first aid procedures. l. Date of preparation of the MSDS. m. Name, address, and phone number of MSDS preparer or distributor.

Item Number	0004	Instance	A	Correction Due Date	02/28/97
Hazards Type	Serious				

Condition: Employees in Computer Operations were not provided required information on hazardous chemicals at the time of initial assignment or when a new hazard was introduced into the work area.

Location: Computer Operations

Potential Effects: Employees may be exposed unknowingly to a toxic material or may use a physically hazardous material in an unsafe manner due to lack of information about the chemical or its hazards. First aid in case of accidental exposure may be incorrect or delayed due to lack of information about first aid and emergency procedures.

Standard: 1910.1200 (h)

Recommended Action: Your written hazard communication program must describe, among other items, a training program for employees, presented at the time of initial assignment and updated whenever a new hazard is introduced to the work area, on the requirements of the hazard communications standard, the hazards in the work area, the ways of detecting or monitoring those hazards, the ways of protecting themselves from those hazards, and the details of your hazard communication program, including where to view and how to obtain copies of the documentation. Training must include not only the hazards encountered during normal operations, but those encountered during non-routine tasks, such as maintenance, and foreseeable emergencies, such as leaks in unmarked pipes.

The purpose of this regulation is to provide information to employees before they are exposed to a chemical hazard. This purpose is defeated if training is delayed until a later date.

Note that additional training is required when a new hazard is introduced, not when a new chemical is introduced. If one solvent is replaced by a less hazardous one, and the replacement has hazards that differ only in degree from the original, no new training is required.

Training must be conducted in a manner understandable to the employee. Those who cannot read and understand English must be instructed in a manner that they can fully understand.

Item Number	0005	Instance	A	Correction Due Date	
Hazards Type	Regulatory				

Condition: The OSHA notice was not posted at the Department of Social Services to inform employees of the protections and obligations provided for in the Act.

Location: Main Office

Potential Effects: Injuries and illnesses, from lack of employee awareness of and management support for employee safety and health rights.

Standard: 1903.2(a)(1)

Recommended Action: A copy of the OSHA poster was provided by the consultant. The poster should be placed in a conspicuous location where notices to employees are customarily posted. Take steps to ensure that it is not altered, defaced, or covered. Additional copies of this and other required forms and posters are available from our office.

B - Employer Report of Action Taken

From: State of CT Department of Social Services
25 Sigourney Street
Hartford, CT

Consultant: Richard Crans

Visit Number: 500311428 Date of Survey: 09/27/96

Item Number	0001	Hazard Type	Serious	Standard	1910.1200(e)(01)
Instance	A	Correction Due Date	02/28/97	Date Corrected	
Describe Corrective Action Taken					
Action Taken to Prevent Recurrence					

Item Number	0002	Hazard Type	Serious	Standard	1910.1200(e)(01)(i)
Instance	A	Correction Due Date	02/28/97	Date Corrected	
Describe Corrective Action Taken					
Action Taken to Prevent Recurrence					

Item Number	0003	Hazard Type	Serious	Standard	1910.1200(g)(01)
Instance	A	Correction Due Date	02/28/97	Date Corrected	

Describe Corrective Action Taken

Action Taken to Prevent Recurrence

Item Number	0004	Hazard Type	Serious	Standard	1910.1200(h)
Instance	A	Correction Due Date	02/28/97	Date Corrected	

Describe Corrective Action Taken

Action Taken to Prevent Recurrence

Item Number	0005	Hazard Type	Regulatory	Standard	1903.0002(a)(01)
Instance	A	Correction Due Date		Date Corrected	

Describe Corrective Action Taken

Action Taken to Prevent Recurrence

C - Safety and Health Program Management

The following are the basic elements of an effective employee safety and health program.

- A. **MANAGEMENT LEADERSHIP AND EMPLOYEE INVOLVEMENT** assigns safety and health responsibility and authority to supervisors and employees and hold them accountable. It includes policy formulation; program review; and encouragement of employee involvement.
- B. **WORKSITE ANALYSIS** identifies current and potential hazards. It includes a thorough baseline survey, to review work processes and individual potential hazards; management of change (to deal with facilities; equipment; and the physical, economic and regulatory environment); job hazard analysis (written safe operating procedures for major tasks); a self-inspection program, using checklists to determine whether facilities and equipment are hazardous, and pairing inspectors to facilitate employee training and participation and to increase the possibility that new observers will find overlooked conditions; a system for reporting hazards; accident and incident investigation; and analysis of injuries and illnesses.
- C. **HAZARD PREVENTION AND CONTROL.** Prevention consists of regular maintenance and housekeeping; emergency planning and preparation; first aid; ready access to emergency care; when required, medical surveillance; and, at the employer's option preventive healthcare (e.g., group health insurance, smoking cessation, and wellness programs). Control includes guards, enclosures, locks, protective equipment, safe work procedures (the result of job hazard analysis), and administrative placement of personnel so as to minimize hazards.
- D. **TRAINING** of all personnel, from managers through supervisors to employees, about the hazards they may be exposed to, and their identification, prevention, and control. Managers and supervisors also need training in program management (e.g., enforcing rules, conducting drills). Training can demonstrate management leadership and facilitate employee involvement.

In assessing program effectiveness, a consultant looks first at written materials (e.g., statement of purpose, goals and objectives, emergency plan) for clarity, completeness, and currency, then for evidence that the written materials have been effectively implemented.

Safety and Health Program Management, with Employee Involvement

A safe and healthful workplace depends on effective management, to involve line workers, supervisors and managers in ensuring that hazards are identified and that effective physical and administrative protections are established and maintained.

The following observations page may help you avoid the recurrence of the hazards and other findings noted during the survey, and prevent the occurrence of other hazards.

Management Leadership and Employee Involvement

Employer and employee interviews suggested that management is committed to employee safety and health. Lines of communication for safety and health concerns have been established and authority and responsibility for such concerns are defined. Management sets an example for safe and healthful behavior, however, a hazard communication program was not developed for computer operations and the OSHA notice had not been posted for employees.

Worksite Analysis

The opening conference and walk through of the work area disclosed problems with hazard identification. These concerns could be alleviated by training employees, conducting routine inspections and periodic surveys of the work area.

During the closing conference, sources of further assistance were suggested. These included insurance companies, employer associations and the State of Connecticut Department of Labor-Occupational Safety and Health Division Consultation Program.

Hazard Prevention and Control

Several items were identified which require correction. All of the elements for the hazard communication program had not been addressed. Additionally, a chemical inventory and material safety data sheets for chemicals used in the computer operations area were not available.

Training

Management should complete the items for the hazard communication program and insure employees understand their responsibilities. The Department of Social Services is encouraged to use training materials that are tailored to the needs of its employees.

D - Training Provided by Consultant

The consultant provided informal training for management and staff regarding indoor air quality. The CONN-OSHA Air Contaminants Standard, 1910.1000, the guideline developed by the American Society of Heating Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) entitled "Ventilation for Acceptable Indoor Air Quality, ASHRAE 62-1989" and the guideline produced by the National Institute for Occupational Safety and Health (NIOSH) entitled "Guidance for Indoor Air Quality Investigations" were discussed. The guidelines discuss methods used to evaluate general ventilation in a workplace, detail the recommended quantity of fresh air which should be supplied to various facilities and identify recommended concentrations of airborne chemicals potentially found in indoor air quality surveys.

Mr. Terrence Hayes from Computer Operations was provided an informal training session about the Hazard Communication standard, CONN-OSHA 1910.1200. Several topics were discussed, which included container labeling, material safety data sheets, and employee training. Responsibilities associated with contractor work performed at the facility and multi-employer workplaces as well as the hazards of non-routine tasks were discussed. The minimum requirements for an effective written hazard communication program were reviewed in detail. A guideline/sample written program which may be used in establishing a written hazard communication program was given to Mr. Hayes. This guideline/sample should not be interpreted as the only requirements that may be in the hazard communication program. In addition, Mr. Hayes was provided a copy of the USDOL-OSHA standard, 1910.1200 and a copy of the OSHA publication entitled "Hazard Communication: A Key to Compliance".

E - Monitoring Report

On September 27, 1996, general air samples for assessing airborne chemical contaminants were taken using an "MSA Model Kwik-Draw Sampler" with appropriate detector tubes. Two "Young Environmental Systems (YES) Model 203 Portable Carbon Dioxide (CO₂) Analyzers" were employed to evaluate carbon dioxide levels. The "Kwik-Draw" sampler was leak tested before and after use and the CO₂ analyzers were calibrated before and after use with a 1000 parts per million (ppm) span gas. The results are summarized in the following tables.

The average temperature and relative humidity (RH) was recorded using a "Whirling Hygrometer" outside Cindy Krewsky's office, in Sally Wlodarski's office and in the computer operations area. The results for these areas were 73° F and 39% RH, 72° F and 42% RH and 71° F and 57% RH respectively.

Table I. Airborne Chemical Contaminant Screening Samples Collected Approx. 3 Feet Above Floor Level				
Identification of Contaminant	Computer Operations, Center Desk Concentration (ppm)*	Sally Wlodarski's Office Concentration (ppm)	Stan Szymanski's Office Concentration (ppm)	Cindy Krewski's Office Concentration (ppm)
Acetone	ND**	ND	ND	ND
Acetic Acid	ND	ND	ND	ND
Ammonia	ND	ND	ND	ND
Formaldehyde	ND	ND	ND	ND
Hexane	ND	ND	ND	ND
Nitrogen Dioxide	ND	ND	ND	ND
Ozone	ND	ND	ND	ND
Styrene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Trichloroethane	ND	ND	ND	ND

* ppm = parts per million parts of air **ND = None Detected

Table II: Carbon Dioxide Air Sampling Results		
Location of Reading	Time	Concentration of Carbon Dioxide ppm*
Outside Cindy Krewski's Office	10:00 AM	690
	11:15 AM	688
	1:35 PM	659
	3:07 PM	696
	3:30 PM	673
Sally Wlodarki's Office	9:50 AM	757
	11:17 AM	788
	1:36 PM	771
	3:05 PM	784
	3:32 PM	790
Oscar Gomez's Office	11:55 AM	706
	3:40 PM	680
Joe Horvath's Office	12:15 PM	880
	3:35 PM	847
Computer Operations	12:25 PM	966
	3:01 PM	991
Norm's Office	3:40 PM	892
Outside Building	4:10 PM	457

* ppm = parts per million parts of air

The chemical contaminant screening did not result in any detectable levels of the chemicals evaluated. The Permissible Exposure Limit (PEL) for carbon dioxide gas established in the State of Connecticut Department of Labor Occupational Safety and Health Division (CONN-OSHA) standard 1910.1000 Table Z-1-A is 10,000 ppm. The concentrations of carbon dioxide that were detected in the areas surveyed were well below the CONN-OSHA PEL.

The following rationale explains why carbon dioxide gas concentrations were monitored to help evaluate indoor air quality. It is excerpted from Guidelines for Indoor Air Quality, published by the National Institute for Occupational Safety and Health (NIOSH):

Carbon dioxide (CO₂) is a normal constituent of exhaled breath and, if monitored, can be used as a screening technique to evaluate whether adequate quantities of fresh outdoor air are being introduced into a building or work area. The outdoor, ambient concentration of CO₂ is normally 250-350 ppm. Usually the CO₂ level is higher inside than outside, even in buildings with few complaints about indoor air quality. However, if indoor CO₂ concentrations are more than 1,000 ppm (3 to 4 times the outside level), there is probably a problem of inadequate ventilation and complaints such as headaches, fatigue, and eye and throat irritation are

frequently found to be prevalent. The CO₂ concentration itself is not responsible for the complaints. However, a high concentration of CO₂ may indicate that other contaminants in the building may also be increased and could be responsible for occupant complaints.

Biological sampling was also performed on August 26, 1996, to access the levels of molds and fungi present. General environmental air sampling was performed using a "Graseby-Anderson Model 10-709 N-61 AFCM" single stage viable impactor sampler at an approximate flow rate of 28.3 liters of air per minute onto a standard petri dish filled with "Sabouraud's Dextrose Agar" for three minutes.

The samples were sent to the Connecticut Department of Public Health's Mycology section for analysis. Analysis was accomplished through enumeration and classification of incubated colonies. Biological materials which were unable to produce identifiable colonies and/or spores were counted and included as either non-septate hyphae or as Mycelia Sterila.

The results are expressed in terms of numbers of colony forming units per cubic meter of air (CFU/M3) and are listed in Table III.

Table III - Fungal Speciation and Quantitation		
Sample Location	Total Number of Colony Forming Units/Cubic Meter of Air	Type and Quantity of Colony Forming Units/Cubic Meter of Air
Stan Syzmanski's Office	12	<u>Mycelia Sterila</u> 12 CFU
Outside Cindy Krewski's Office	12	<u>Cladosporium sp.</u> 12 CFU
Sally Wlodarski's Office	12	<u>Rhodotorula sp.</u> 12 CFU
David Sheffield's Office	35	<u>Cladosporium sp.</u> 12 CFU <u>Penicillium sp.</u> 12 CFU <u>Rhodotorula sp.</u> 11 CFU
Computer Operations	12	<u>Mycelia Sterila</u> 12 CFU
Outside Building	467	<u>Alternaria sp.</u> 12 CFU <u>Aspergillus sp.</u> 12 CFU <u>Cladosporium sp.</u> 187 CFU <u>Epicoccum sp.</u> 23 CFU <u>Humicola sp.</u> 11 CFU <u>Mycelia Sterila</u> 70 CFU <u>Paecilomyces sp.</u> 12 CFU <u>Phoma-like sp.</u> 140 CFU

According to "OSHA Instruction TED-1.15", outdoor spore levels may range from 1000-100,000 colony forming units per cubic meter of air (CFU/M3). Contamination indicators are 1000 viable CFU/M3, 1,000,000 fungi per gram of dust or material, or 100,000 bacteria or fungi per milliliter of stagnant water or slime. Levels in excess of the above do not necessarily imply that conditions are unsafe or hazardous. Rather, it is the types and concentrations of airborne microorganisms which will determine the hazard to employees. Many variables affect microbial concentrations in indoor air. It should always be kept in mind that air

sampling for fungi in itself may not be used to predict potential adverse health responses to a microbial agent which may be responsible for a building-related illness.

Spores of fungi are almost always present, however, the types and quantities of fungi vary with the time of day, weather, season, and geographical location. Typically, the quantities of fungal spores will be greater outdoors than indoors, if there is no source for fungal growth in a building. Although similar types of fungi are found indoors, as are found outdoors. A review of Table III indicates that fungal contamination was not evident on the day of the consultation.

In a review article published in "Allergy" in 1979, by Susan Gravesen, she states that "spores can deposit on allergic mucosa and release symptoms or can sediment indoors with dust on places such as moist basements, poorly ventilated rooms, or window frames with condensed water". The most important allergen sources are found among the saprophytic fungi (e.g. Cladosporium, Alternaria and Aspergillus). Gravesen also states that "two common molds, Alternaria and Cladosporium, regarded as allergenic fungi, evoke allergic symptoms at estimated concentrations of 100 CFU/M3 of Alternaria spores and 300 CFU/M3 of Cladosporium spores in air".

According to the book entitled "Mould Allergy", authored by Yousef Al-Doory, the mold genera that most often produce hypersensitivity skin test reactions in allergic individuals include Alternaria, Cladosporium, Helminthosporium, Fusarium, Penicillium, Phoma, Aspergillus, Rhizopus and Mucor. Other members of Aureobasidium, fungal classes such as the Basidiomycetes, are being investigated as possible causes of fungal allergy in humans. Al-Doory also states that "Most airborne fungi are found as spores and a few as hyphal fragments. The Penicillium, Helminthosporium, Aureobasidium, Phoma, Nigrospora, Rhizopus, Mucor, Epicoccum, Stemphylium, Curvularia, Fusarium, Scopulariopsis, Chaetomium, Trichoderma, Streptomyces, Candida, Cryptococcus, and Rhodotorula, as well as rusts, smuts, and hyphal fragments that could belong to mycelia sterilia, or other sporulating fungi".

The book entitled "Indoor Air Quality" edited by Philip J. Walsh, Ph.D. et.al, states that "Cladosporium species are by far the taxa most frequently recovered both outdoors and in domestic and other "clean" interiors during the summer in the U.S., Europe and Asia, but are always more abundant outdoors than indoors. Penicillium isolations usually dominate wintertime U.S. collections and are often considered an "indoor" fungus group, often being more abundant indoors than out...Form species of Alternaria were the most frequent indoor fungi during summer in two southwestern U.S. studies...Aspergillus isolations have predominated in only two studies, one in Taiwan and one in the U.K. However, the aspergilli are considered one of the most common groups of 'indoor' fungi."

Overt contamination of domestic interiors commonly occurs when outdoor fungi flourish on indoor substrates. Water disasters may often produce abundant mold growth inside buildings and elevate spore levels. Organic material may support mold growth when moist. Damp walls may also have Cladosporium and Aureobasidium, while wet leather, cotton and paper may be covered with Penicillium and/or Aspergillus spores. Fire proofing materials, furniture, carpets and stored organic items all are foci for mold contamination. Repair work may increase spore levels (as a result of dust dispersion). House plants have also been suspected for sources of Aspergillus fumigatus. Moldy hay, when shaken, may produce large quantities of spores of Aspergillus, Penicillium and Mucor species.

Cladosporium is ubiquitous and is most frequently encountered in close proximity to beech trees, soil, paints, window frames and low drainage environments. Alternaria is often found growing with Cladosporium, and is found to release spores in dry air. Certain species of Alternaria and Cladosporium have been identified as causes of allergic rhinitis and asthma.

Aspergillus may be isolated from raw textile materials, such as cotton kapok, hemp and jute. It may act as an opportunistic pathogen, capable of infecting lungs, ears and eyes. Certain species have been associated with alveolitis.

Curvularia, Botrytis and Bipolaris are common saprophytic fungi which are not considered pathogenic.

Aureobasidium is often found on leaves, in kitchen, in bathrooms and on interior painted surfaces.

Penicillium may be found on almost all organic materials.

Oospora and Paecilomyces are common environmental molds. They are not considered pathogenic. Oospora is commonly found in soil and Paecilomyces is similar to Penicillium.

Rhodotorula is commonly found in surveys for airborne fungi and prefers moist locations such as cold mist vaporizers.

Geotrichium candidum is a cosmopolitan fungi found in soil, water, cereal, fruit, bread, milk products, paper and textiles. It is the causative agent in geotrichosis of the pulmonary, bronchial, oral, gastrointestinal and cutaneous tissues.

Gliocladium is a commonly found organism and is considered a mold allergen.

Request For Extension

From:

Consultant: Richard Crans

Visit Number: #500311428

Date of Survey: 09/27/96 thru 10/18/96

Item #		Hazard Type		Standard	
Instance		Original Correction Due Date		Additional Time Requested	
Identify all steps taken to achieve compliance during abatement period, including the dates(s) of these steps					
The reasons why an extension is necessary (unavailability of material, equipment, help, etc.)					
Identify all available interim or temporary measures being taken to safeguard employees from the hazards					
Any further information you believe may be helpful to this office in considering your request for an extension					

PLEASE ATTACH ALL SUPPORTING DOCUMENTATION SUCH AS ORDERS, INVOICES, RECEIPTS, ETC.

This form may be reproduced if additional copies are needed.

TOSHIBA 50-100

CONNECTICUT DEPARTMENT OF LABOR
DIVISION OF OCCUPATIONAL SAFETY & HEALTH



Questionnaire

The mission of the Connecticut Division of Occupational Safety & Health (CONN-OSHA) Consultative Services is to provide timely, courteous and professional consultative services to Connecticut employers and their employees so they may recognize and control workplace hazards and prevent occupational injuries, illnesses and fatalities. In a continuing effort to improve our services, we ask that you complete the following questionnaire. Your responses will tell us if the program is working and how we can improve. Your opinion is important to us.

PLEASE CHECK THE APPROPRIATE RESPONSE:



1. In what way did you learn about CONN-OSHA's Consultative Services?

<input type="checkbox"/> Previous Consultation	<input type="checkbox"/> Insurance Company Referral
<input type="checkbox"/> Public Presentation/Speech	<input type="checkbox"/> Publications/Flyers
<input type="checkbox"/> Personal Contact	<input type="checkbox"/> US/DOL-OSHA Referral
<input type="checkbox"/> Conference/Trade Show	<input type="checkbox"/> CONN-OSHA Staff Referral
<input type="checkbox"/> Business Acquaintance	<input type="checkbox"/> Other: _____

2. Did you receive a prompt response to your request for assistance?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
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How long did you have to wait for a consultation? _____ weeks

3. Was the consultant friendly, courteous and knowledgeable about the machinery and/or processes associated with your business? ☐ Yes ☐ No
Please explain:

4. Would you recommend our services to other businesses? ☐ Yes ☐ No
Please explain:

5. Did the report address all issues of interest to you? ☐ Yes ☐ No
Was it written in such a manner to be easily followed and understood? ☐ Yes ☐ No
Please explain:

6. Check the applicable statement(s) below:
- ☐ We have implemented the recommendations made by the consultant.
 - ☐ We are in the process of implementing the recommendations.
 - ☐ We plan to implement all the recommendations.
 - ☐ We plan to implement only part of the recommendations.
 - ☐ We do not plan to implement your recommendations.
 - ☐ We plan to request additional services in the future.

7. List any suggestions you feel would improve our program and services:

8. Please rate the overall effectiveness of this consultation in solving your safety and health problems:



We appreciate the courtesy extended by your company during this consultation. Should your company need additional assistance with workplace safety and health problems or issues, please call CONN-OSHA's consultants at any time.

Samuel C. Moore
Director

(860)566-4550

Connecticut Labor Department
Division of Occupational Safety & Health
200 Folly Brook Boulevard
Wethersfield, CT 06109

Firm Name: _____

Consultation Date: _____

Consultant: _____

Visit Number: _____

Contact Person: _____

Phone: _____